

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A dynamic flow rate adjusting method for an injector, which has a valve member for opening or closing an injection hole, an electric driving member for driving the valve member to open or close and an adjuster for adjusting injection quantity of fluid injected from the injection hole by the injector, the dynamic flow rate adjusting method comprising the steps of:

measuring a flow rate of the fluid flowing through the injector;
changing an adjusting amount of the adjuster; and
measuring a static flow rate of the injector;
calculating the adjusting amount of the adjuster for achieving a target dynamic flow rate based on the measured static flow rate of the injector.

2. (original) The dynamic flow rate adjusting method for the injector as in claim 1, wherein

the injector has a biasing member for biasing the valve member in a direction for closing the injection hole,
the electric driving member drives the valve member in a direction for opening the valve member against biasing force of the biasing member,
the adjuster contacts the biasing member, and

the adjusting amount of the adjuster is adjusted to regulate a load, which is applied to the valve member by the biasing member in the direction for closing the injection hole.

3. (original) The dynamic flow rate adjusting method for the injector as in claim 2, wherein

the adjuster is positioned by press-fitting, and
the load of the biasing member is regulated by adjusting a press-fitting degree of the adjuster.

4. (original) The dynamic flow rate adjusting method for the injector as in claim 2, wherein the adjusting amount of the adjuster is decreased as the static flow rate of the injector increases and is increased as the static flow rate of the injector decreases in the calculating step.

5. (currently amended) A dynamic flow rate adjusting method for an injector, which has a valve member for opening or closing an injection hole, an electric driving member for driving the valve member to open or close and an adjuster for adjusting injection quantity of fluid injected from the injection hole by the injector, the dynamic flow rate adjusting method comprising the steps of:

measuring a flow rate of the fluid flowing through the injector;
changing an adjusting amount of the adjuster; and

calculating the adjusting amount of the adjuster for achieving a target dynamic flow rate based on a static flow rate of the injector; wherein

the injector has a biasing member for biasing the valve member in a direction for closing the injection hole,

the electric driving member drives the valve member in a direction for opening the valve member against biasing force of the biasing member,

the adjuster contacts the biasing member,

the adjusting amount of the adjuster is adjusted to regulate a load, which is applied to the valve member by the biasing member in the direction for closing the injection hole, and

~~The dynamic flow rate adjusting method for the injector as in claim 2, wherein the~~
adjusting amount of the adjuster is calculated from an adjustment coefficient in the calculating step, the adjustment coefficient being a rate of change in an ineffective injection period in a single injection command signal with respect to the adjusting amount of the adjuster.

6. (currently amended) The dynamic flow rate adjusting method for the injector as in claim 5, wherein ~~the~~a plurality of injectors are calculated respectively and an average value of the adjustment coefficients calculated by the previous adjustment is employed as the adjustment coefficient for the present adjustment in the calculating step.

7. (canceled)

TOIYAMA

Application No. 10/693,956

April 3, 2006

8. (new) An apparatus for adjusting a dynamic flow rate of an injector, the injector having a valve member for opening or closing an injection hole, an electric driving member for driving the valve member to open or close and an adjuster for adjusting injection quantity of fluid injected from the injection hole by the injector, the apparatus comprising:

a flowmeter for measuring a flow rate of the fluid flowing through the injector;

a changing mechanism for changing an adjusting amount of the adjuster;

a static flowmeter for measuring the static flow rate of the injector; and

a calculator for calculating the adjusting amount of the adjuster for achieving a target dynamic flow rate based on the measured static flow rate of the injector.

9. (new) The apparatus as in claim 8, wherein

the injector has a biasing member for biasing the valve member in a direction for closing the injection hole,

the electric driving member drives the valve member in a direction for opening the valve member against biasing force of the biasing member,

the adjuster contacts the biasing member, and

the adjusting amount of the adjuster is adjusted to regulate a load, which is applied to the valve member by the biasing member in the direction for closing the injection hole.

TOIYAMA

Application No. 10/693,956

April 3, 2006

10. (new) The apparatus as in claim 9, wherein the adjuster is positioned by press-fitting, and the load of the biasing member is regulated by adjusting a press-fitting degree of the adjuster.

11. (new) The apparatus as in claim 9, wherein the adjusting amount of the adjuster is decreased as the static flow rate of the injector increases and is increased as the static flow rate of the injector decreases as calculated by the calculator.

12. (new) An apparatus for adjusting a dynamic flow rate of an injector, the injector having a valve member for opening or closing an injection hole, an electric driving member for driving the valve member to open or close and an adjuster for adjusting injection quantity of fluid injected from the injection hole by the injector, the apparatus comprising:

 a flowmeter for measuring a flow rate of the fluid flowing through the injector;
 a changing mechanism for changing an adjusting amount of the adjuster; and
 a calculator for calculating the adjusting amount of the adjuster for achieving a target dynamic flow rate based on a static flow rate of the injector; wherein
 the injector has a biasing member for biasing the valve member in a direction for closing the injection hole,

 the electric driving member drives the valve member in a direction for opening the valve member against biasing force of the biasing member,
 the adjuster contacts the biasing member, and

the adjusting amount of the adjuster is adjusted to regulate a load, which is applied to the valve member by the biasing member in the direction for closing the injection hole; and

the adjusting amount of the adjuster is calculated from an adjustment coefficient calculated by the calculator, the adjustment coefficient being a rate of change in an ineffective injection period in a single injection command signal with respect to the adjusting amount of the adjuster.

13. (new) The apparatus injector as in claim 12, wherein adjustment coefficients of a plurality of injectors are calculated respectively and an average value of the adjustment coefficients calculated by the previous adjustment is employed as the adjustment coefficient for the present adjustment for use by the calculator.

14. (new) A dynamic flow rate adjusting method for an injector, which has a valve member for opening or closing an injection hole, an electric driving member for driving the valve member to open or close and an adjuster for adjusting injection quantity of fluid injected from the injection hole by the injector, the dynamic flow rate adjusting method comprising the steps of:

measuring a flow rate of the fluid flowing through the injector;
changing an adjusting amount of the adjuster; and
calculating the adjusting amount of the adjuster for achieving a target dynamic flow rate based on a static flow rate of the injector and an adjustment coefficient which is

based on a rate of change in an ineffective injection period in a single injection command signal with respect to the adjusting amount of the adjuster.

15. (new) The dynamic flow rate adjusting method for the injector as in claim 14, wherein adjustment coefficients of a plurality of injectors are calculated respectively and an average value of the adjustment coefficients calculated by the previous adjustment is employed as the adjustment coefficient for the present adjustment in the calculating step.